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1. (Currently Amended) A method for preparing a photocatalyst containing titanium dioxide, characterised in that from an acid solution containing titanium oxysulphate at a temperature under the boiling point of the solution is precipitated by addition of crystal nuclei a sulphurous titanium dioxide hydrate precipitate, said precipitate being separated and subsequently subjected to thermal treatment in order to obtain a crystalline product with a sulphur content of 1 to 5 w%;

and wherein the precipitation is conducted without addition of base in a temperature range from 70 to 100°C and the precipitate separated from the solution is calcinated in air in the temperature range from 100 to 500°C.

2-3. (Cancelled)

4. (Currently Amended) A method as defined in claim 3 1, characterised in that the crystal nuclei are anatase.

5. (Cancelled)

6. (Currently Amended) A method as defined in claim 1, characterised in that the solution containing titanium oxysulphate is obtained by reacting ilmenite and sulphuric sulphuric acid, by dissolving the sulphate thus formed and by removing at least part of the iron from the solution by reduction into ferrous form and crystallisation.

7. (Original) A method as defined in claim 6, characterised in that ferric iron is left in the solution, so that the

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titanium dioxide hydrate precipitate obtained contains iron.

8. (Previously Presented) A method as defined in claim 1, characterised in that a chromium (III) compound is added to the precipitate before the thermal treatment.

9. (Previously Presented) A method as defined in claim 1, characterised in that an iron compound is added to the precipitate before the thermal treatment.

10. (Currently Amended) A photocatalyst obtained by a method according to claim 1, the photocatalyst containing titanium dioxide, characterised in that the crystalline particulate product has a specific surface area in the range from 100 to 250 m²/g and that the product contains 1 to 5 w%, preferably 1 to 4% of sulphur.

11. (Original) A photocatalyst as defined in claim 10, characterised in that the major portion of titanium dioxide is in anatase form.

12. (Currently Amended) A photocatalyst as defined in claim 1, characterised in that the product contains 0.05 to 2 w% of chromium, preferably 0.1 to 1%, and 0.05 to 0.3 w% of iron, preferably 0.1 to 1.5%.

13. (Currently Amended) Use of A method for photocatalysing a reaction, comprising adding a titanium dioxide prepared as in claim 1, as photocatalyst operating at into a reaction mixture and directing visible light

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wavelengths to the photocatalyst for exciting the photocatalyst.

14. (Currently Amended) Use of A method for photocatalysing the decomposition reaction of a organic compounds and microorganisms, comprising adding a titanium dioxide prepared as in claim 1, as a into a reaction mixture containing organic compounds or microorganisms and directing light to the photocatalyst in the decomposition of organic compounds or microorganisms for exciting the photocatalyst.

15. (Currently Amended)

Use of a A coating composition comprising titanium dioxide photocatalyst prepared as in claim 1, as a photocatalyst in a coating composition.

Use of the A coating composition comprising titanium dioxide photocatalyst prepared as in claim 1, as a photocatalyst in a coating composition.